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SELECTED TRANSLATIONS ON USSR COMMUNICATIONS (6)

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FOREWORD

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SELECTED TRANSLATIONS ON USSR COMMUNICATIONS (6)

This is a series publication containing translations of items concerning communications in the USSR. The items contained herein, covering the subjects listed in the table of contents below, were taken from various newspapers, periodicals, etc., published in the USSR in January 1961.

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SELECTED TRANSLATIONS ON USSR COMMUNICATIONS (6)

RADIO BROADCASTING AND TELEVISION IN 1961--Moscow, Radio.
No 1. 1961, pages 4-5.

The Soviet people are exerting a mighty creative effort to realize the historical goals set for them by the decision adopted at the XXIst Congress of the CPSU (Communist Party of the Soviet Union). The results of the first two years of the Seven-Year Plan, which laid the foundation for the early fulfillment of this great plan for the expanded construction of Communism, are instilling in the minds of the Soviet people a sense of patriotic pride and confidence in their own powers.

The goals set in the Seven-Year Plan program as regards radio broadcasting and television are likewise being successfully fulfilled.

As is known, the decisions of the XXIst Party Congress pointed out the necessity for accelerating the growth rate in the field of ultra-high-frequency broadcasting. In response to this call, ultra-high-frequency FM (frequency modulation) radio stations have gone into operation in 35 cities over the last two years, so that now ultra-high-frequency broadcasting is carried on in 60 cities of the Soviet Union. Thus, it is already possible to speak of the extensive utilization of this progressive form of radio broadcasting which makes it possible to assure high reception quality.

At the present time, special programs for transmission over FM are being introduced; this will allow the radio listeners to make an additional choice in selecting the programs of interest to them. The experience of organizing such programs in Leningrad, Yaroslavl', Kuybyshev, Sverdlovsk, Gor'kiy and certain other cities has yielded positive results.

Along with the development of UHF broadcasting, there were further increases in the power of the radio broadcasting network, achieved by the construction of radio stations operating on the medium, long, and short wavelengths in a number of districts in the country, including the North and the Far East.

As a result of the introduction of new technical methods and a more rational utilization of the existing power capabilities, there has been an improvement in the stability and quality of radio broadcasting in the Khabarovskiy and Primorskiy krais, in the Irkutsk Oblast, in the

republics of the Transcaucasus and Central Asia, as well as a number of other regions in the country. There have likewise been improvements in the quality of program services from the urban centers transmitting programs to remote radio stations for rebroadcasting; this was aided by the more expensive introduction of single-band air program transmitting channels and the organization of new wide-band transmitting channels as a part of cable and radio relay trunk lines, upon the introduction of the latter into use.

Much work was done on the reconstruction and technical renovation of the existing radio broadcasting station network, the increasing of station power, the conversion to more effective modulation circuits, the application of new and economical types of radio tubes, and the expansion of the transmitter ranges. The introduction of automation into radio broadcasting station regulation and control was an aid to increasing the productivity of labor at the various broadcast facilities, and created the necessary basis for an even more significant growth in labor productivity in the years ahead.

In the current year, work on the further increasing of Soviet broadcasting power will continue. UHF broadcasting will, as formerly, remain an object of constant attention; with this purpose in mind, it is intended at present to make use of a new automated UHF FM radio station exhibiting sufficiently high qualitative indices. With the purpose of organizing the monitoring and retranslation of UHF broadcasts, there will be started the introduction of an automated two-program receiver.

A beginning must be made toward the introduction of stereophonic broadcasting, which is of great importance in increasing the quality and improving the sound of radio broadcasts.

The directives of the XXIst Congress of the CPSU on the further development of the radio reception network are likewise being successfully realized. During the years of the Seven-Year Plan, the number of radio reception points must increase by 30 million. Over the years 1959-1960, their number had already increased by almost 10 million, so that by the start of the current year there were about 50 million radio reception points all over the country. Serious attention is being devoted to the automation of radio rebroadcasting centers, for the purpose of lowering the labor costs in the area of operational and technical servicing, and improving the qualitative indices. In the cities, this work is already nearing completion, whereas in the villages it is in actuality just beginning to take shape.

A start has been made in the production of semiconductor apparatus, with whose aid it will be possible not only to convey radio programs but also electrical power along the intrarayon network communications lines from the rayon centers into the kolkhozes and sovkhoses. Thus, the possibility presents itself of replacing small low-power radio rebroadcast points, whose operation is economically unprofitable and which cannot assure high quality listener services, with remotely controlled substations operating on semiconductor equipment. Industrial prototypes have also been constructed of the SVR-ADU apparatus designed for the remote regulation from the rayon centers of rural radio broadcasting and receiving units of any power, as well as for the conveyance of programs to these units along telephone lines. The responsibility now lies with industry, which must organize the mass-production of this equipment.

Taking into account, that even today in a number of Soviet republics, a considerable number of kolkhozes and kolkhoz households do not have available to them the services of a radio reception network, there must in no case be any lowering of work rates on rural radiofication. In considering this matter, one must note that in the small and remote population centers, where the provision of a transmission line system of radiofication is a matter involving great expense and many complications, an effort should be made to introduce wireless receivers.

It is necessary to marshal the participation of the collective farm workers themselves in the radiofication effort; the kolkhoz workers have shown a great interest in radio broadcasting and usually gladly offer their assistance to communications workers. Ahead in this respect is the Penzenskaya Oblast, where the struggle for the completion of radiofication has recently assumed the character of a mass movement and where reasonably good results have been achieved.

Likewise deserving of general approbation is the remarkable undertaking of the communications workers in the Kievskaya and Khar'kovskaya Oblasts, who decided to render systematic and concrete assistance to the communications workers in a number of neighboring oblasts who are encountering various difficulties.

The July Plenum of the Central Committee of the CPSU noted the necessity for accelerating work on the radiofication of our country. All of the necessary preliminary conditions for this work have already been realized in our country, and the success of the effort now depends on us, on our activeness and initiative, as well as on our ability to utilize the locally available internal reserves and possibilities.

Television broadcasting is rapidly developing in our country. By the start of the Seven-Year Plan, there were 60 television stations in the Soviet Union and slightly over 2.5 million television receivers. At the present time, there are over 100 television stations in operation and more than 200 low-power rebroadcast units servicing a total area inhabited by over 75 million people; the number of television receivers now exceeds 5 million.

Over the last two years, television centers have gone into operation at Ashkhabad, Stalinabad, Khabarovsk, Groznyy, Dzhezkazgan, Zaporozh'ye, Yoshkar-Ola, Kazan', Komsomol'sk-na-Amure, Kurgan, Noril'sk, Magadan, Petrozavodsk, Makhachkal, Ukhta, Yuzhno-Sakhalinsk, and a number of other cities. Powerful rebroadcast television stations (RTS) have been built in Aidizhan, Bryansk, Kokhtla-Yarva, Salavat, Tambov, Krivoy Rog, etc.

Still in the planning or construction phases are over 40 television centers and rebroadcast points for Astrakhan', Arkhangel'sk, Berezniki, Magnitogorsk, Orenburg, Ordzhonikidze, Petropavlosk-Kamchatskiy, Pskov, Ulan-Ude, Balkhash, Vologda, Vinnitsa, Klaypeda, Kaidalakshi, and other cities. Already in the current year, there will be built over 20 television centers and stations. There will likewise be a continued growth in the network of low-power television rebroadcast units. In Moscow, in the Ostankino district, construction has begun on the Great Moscow Television Center.

The number of television receivers by the end of this year will exceed 5 million units. The mass-production of new types of television receivers has begun; these include models with kinescope tubes having an electron beam deflection of 110° ("Rubin-104", "Temp-6", "Volna", "Druzhba", and others), thus making it possible to reduce considerably the dimensions of the receivers. Due for completion is the development of a new model of a mass-produced, economical television receiver having a screen size of 35 centimeters along the diagonal. This television set is intended to replace the obsolete "KVN-49", the production of which is being suspended.

In 1960, an experimental color television station initiated regular operations in Moscow. Its broadcasts are transmitted over a special low-power television station on the eighth frequency channel, as well as over the second-program radio station on the third frequency channel. The broadcasts transmitted by the station are monitored at over 40 different points in the city by means of special color television receivers designed and constructed at the factories of the Moscow Municipal and Leningrad Sovnarkhozes

(councils of the national economy). Since the color television system we are developing is compatible, the broadcasts of the experimental color television station are received quite well in black-and-white on standard television receivers on channels 3 and 4.

Following the thorough study of the system selected and the elimination of its present shortcomings, color television will be introduced at a number of the nation's television centers, and first of all at the capitals of the Soviet republics.

Along with the construction of television stations and rebroadcast units, there is taking place a rapid growth in the network of radio relay and cable communications lines; this is also of exceptionally great importance to the further progress of television broadcasting.

During the first stage of the development of television, when we still had few radio relay and cable lines, it was necessary to construct in the main television stations of the type which could broadcast their own programs. This was an extremely expensive operation, and created serious difficulties in its exploitation. After all, it is not everywhere that there is a possibility for producing interesting and valuable programs. With the development of the network of radio relay and cable trunk lines, there came into view the possibility of putting the main emphasis on the construction of television rebroadcast stations, that is stations which would transmit not their own programs, but rather broadcasts received from another television production center. With each passing year, the ratio between the numbers of production and rebroadcast television stations will change in favor of the latter.

As the result of the development of radio relay and cable communications lines, even now the broadcasts emanating from the Moscow Television Center can be received along with the viewers in the capital by the people living in 22 oblasts, including the Orlovskaya, Smolenskaya, Voronezhskaya, Kurskaya, Khar'kovskaya, Kievskaya, Rostovskaya, and other oblasts. In turn, Moscovites have had an opportunity to view television programs from Kiev. A regular exchange of television programs is going on between Leningrad and Tallin, soon to be joined by Riga, Vil'nyus, and Minsk. In the very near future, there will begin a regular exchange of television programs between the Moscow and Leningrad television centers.

Radio relay lines which will connect television centers in a number of Soviet republics are now under construction: between the Tashkent, Alma-Ata, and Frunze centers in Central Asia, and the Yerevan, Tbilissi, and Baku centers in

the Transcaucasus. In the next two years there will be a possibility of arranging an international exchange of television programs with a number of European capitals, first among which will be Prague, Warsaw, and Berlin.

Local radio relay lines are being constructed along with the main trunks. This will assure the availability of television reception in almost all of the populated centers in a number of oblasts, krais, and republics. Work toward this goal is proceeding successfully in the Uzbek and Azerbaydzhan Soviet republics, in the Altay Kray, the Sverdlovskaya, Murmanskaya, Kemerovskaya, and other oblasts.

Of no mean importance to the task of increasing the range of television reception is the ever-expanding network of low-power television rebroadcasting stations. The comparatively low cost of the equipment used at such installations, as well as the fact that the rebroadcast facilities do not require constant servicing, but rather, as a rule, function automatically, permits us to make television services available to tens of thousands of people without significant material expenditures.

It would not be amiss at this point to note the fact that in the past, there have been individual cases wherein local organizations installed television rebroadcast units without consulting the agencies of the Communications Ministry and without taking into account the technical possibilities for making television services available to the viewers.

Such cases must not be permitted to recur in the future. One must also take into account that low-power rebroadcast units should be installed only at those points which within the next few years will not be covered by the reliable coverage zones of television stations. If, in addition, the program is received by wireless means, one must have available a continuously stable signal level from the originating station.

In the current year, there will be published rules for the technical exploitation of television centers and rebroadcasting stations; rules governing the technical exploitation of radio communications and broadcasting facilities which take into account the work experience of the leading enterprises in the new technology will also be reissued.

The publication of these rules is a major event in the lives of the workers employed at the various radio and television enterprises. It will be necessary to induce thorough study of these rules and to carry on an insistent struggle for their application in actual work practice.

An important problem of the current year is the raising of the level of technical exploitation of the radio

broadcasting and television facilities. There are still lags in this area, despite the constantly growing demands of life itself and the available possibilities. In our time, when millions of Soviet people are raising ever higher the banner of Communist labor, when the struggle for high labor productivity in the consciousness of the urban and rural workers is inseparably connected with the high quality of work output, we are obliged to do everything necessary to assure the provision of exemplary radio and television services to the people of our country.

1961 must become a year of new and great achievements in the development of Soviet radio.

THE NEW MOSCOW TELEVISION CENTER--Moscow, Radio, No 1,
1961, pages 6-7.

"The Great Moscow Television Center", I.V. Ostrovskiy emphasized, "was conceived as a complex of various technical facilities, which will include both the technical installation and studios already in existence on Shabolovka Street, and the new buildings going up in Ostankino. The most remarkable of the new buildings is, of course, the freely-standing tower of prestressed concrete, whose construction is being intensified each day in Ostankino. Before describing this tower in more detail, however, one should answer the question of what gave rise to the necessity for such a structure? After all, this type of structure has no precedent anywhere in the world.

"The basic reason for this, lies in the fact that the transmitting station of the Moscow Television Center on Shabolovka Street is already incapable of satisfying from the qualitative point of view the constantly growing demands of the Soviet viewer.

"As is known, it presently transmits two black-and-white television programs and one experimental color television program. The first program is broadcast by a radio station which operates on the first frequency channel (48.5-56.5 megacycles). The video signal and sound portion transmission power of each of the transmitters is 15 kwt (kilowatts). The first-program transmitters send out their program over a three-story rotary antenna set atop the Shukhov Tower at a height of 150 meters above the ground. The second program is transmitted over a standard television station with a video signal power of 5 kwt and a sound portion power of 2.5 kwt. This station operates on the third frequency channel (74.0-86.0 megacycles) over a four-story rotary antenna installed atop a 110 meter tower.

"The experimental color television program is broadcast by the Moscow Television Center over a station having a 100-watt video power and a 30-watt audio power.

"The height of the towers and the power of the transmitters were determined by the following reliable reception zones covered by the television center of the capital: its first program is received over a radius of 60-70 kilometers, the second--over a radius of 60 kilometers. This, of course, is far from satisfactory. Also insufficient is the number of programs which the existing Moscow Television Center is capable of transmitting.

"The new transmitting station of the Great Moscow Television Center will simultaneously transmit 6 radio programs and 5 television programs, 4 of which will be black-and-white and 1 in color. In addition, the equipment of the station will in the future permit an increase in the number of color programs without any significant changes.

"Let us look into the near future and try to gain some idea of the new possibilities which will open up before the television viewer.

"According to his wish, he will be able to select that which interests him most: the latest news over the first program, a concert over the second, or a color television broadcast over the appropriate channel. A special program will be produced for rebroadcasting the most interesting programs originating from other television centers. In a single evening, the Muscovite will be able to visit Kiev, Minsk, Leningrad, and other cities of the Soviet Union, as well as to pay a call on the cities of the fraternal Socialist countries. Nor have we forgotten our numerous correspondence study students. We will put at their disposal one of the transmission channels for broadcasting the so-called educational program.

"All of these possibilities will be made available not only to the residents of Greater Moscow. The reliable reception radius for all of the programs will be no less than 120-130 kilometers; this means practically a four-five fold increase in the zone of reliable reception (see the map printed on the back cover) /not reproduced here/.

"In order to solve this problem, the architects of Mosproyekt (Moscow Planning Agency), and the staff members of our institute in co-operation with specialists from the Leningrad scientific research organizations, have selected the appropriate transmission power ratings, specified the height of the antenna support, and worked out the necessary apparatus and high-efficiency antennas with a large gain coefficient.

"It is interesting to note that in order to cover such a territory with a five-program television service as will be made available by the new broadcasting station located atop a high tower, with the aid of the antenna supports which the Moscow Television Center presently has at its disposal, would require the installation of many tens of rebroadcast units. This is economically unprofitable, and, in addition, the number of frequency channels presently used for television broadcasts would be insufficient for eliminating the possible technical difficulties during the operation of the rebroadcast units.

"And so, the basic structure of the Great Moscow Television Center is the high tower. Its diameter at the base is equal to 65 meters. It consists of two basic parts; the lower part (up to a height of 384.0 meters) is being built of monolithic prestressed concrete; the upper part (up to the 520-meter level) is designed in the form of a conical steel tube atop which will be mounted the antenna structures of the transmitter.

"The lower tower area (up to 51 meters) occupies eleven stories. This portion will house all of the basic equipment for transmitting the four television programs and the six ultra-high-frequency radio programs. The 120-140 meter level will house the radio relay line outputs for international and interurban television program exchanges. Higher up, at the 250-meter level, equipment will be installed for the operations of the mobile television stations, which will convey programs from sports stadia, concert halls and theaters, factories and plants, and other origination points.

"The upper part of the prestressed concrete trunk (at a level of 340-360 meters) will be found the equipment for the transmission of the fifth television program.

"Present plans include a restaurant and look-out areas for sightseers, who will be able to enjoy the beautiful panorama of our capital from this enormous height.

"Three express elevators with a capacity of 1000 kilograms each will be installed for conveying the sightseers and technical staff to the various levels of the tower. The speed of the elevators will be about 5 meters per second. Thus, the trip to the 350-meter level will take less than two minutes.

"What then are the frequency channels over which the five television programs of the new Moscow Television Center will be transmitted?

"The broadcasts will be transmitted over the first and third frequency channels which presently carry the two black-and-white television programs, and also the eighth channel

which is presently being used for experimental color television transmission, and, in addition, two supplementary channels.

"The black-and-white television programs will be transmitted by stations having a power of 50/15 kwt each; the ultra-high-frequency frequency modulation programs will be transmitted by 15 kwt stations.

"The color television transmitter will have a video transmitter of 25 kwt and an audio portion transmitter of 7.5 kwt.

"Future plans include the installation of another such pair of transmitters, and then the station will consist of two aggregates with a total transmitting power of 50 kwt for the video portion and 15 kwt for the audio portion.

"In conclusion, it is necessary to note that the construction of the transmitting station of the Great Moscow Television Center will make possible a considerable improvement in the technical quality of television broadcasts, as well as a sharp increase in the television signal flux density within the limits of Greater Moscow. This will obviate the necessity for television viewers of installing external antennas within a radius of 15-20 kilometers. A room antenna or an antenna built right into the television receiver will be fully adequate.

"In the light of these facts, the entire block of programs designed for external consumption requires a special role. There will be new developments in the international exchange of television programs. In this lies the importance of the Great Moscow Television Center for the entire country. In the very near future, Moscow will become not only a radio broadcasting center, but a television center as well. The broadcasts emanating from Moscow will be seen by tens of millions of workers in the Soviet Union."

PROSPECTS FOR TELEVISION DEVELOPMENT IN THE USSR--Moscow,
Tekhnika Kino i Televideniya, No 1, 1961, pages 7-10.

With the start of 1961, one should sum up that which has taken place in the last year and to familiarize the readers of the magazine with the future plans for the development of television in our country.

The first television center was built in Moscow in 1938. As late as 1950, the country had still only two operating television centers--the ones at Moscow and Leningrad. And it was only in 1955 that the extensive development of television really got under way; it was at

this time that 44 television stations were planned, 28 of which were to have constituted television program production centers in the large cities and 16 of which were to be television rebroadcast stations.

The XXIst Congress of the Communist Party outlined the future program for the development of television in the USSR, according to which about 100 television stations are to be built by 1965; 90 of these television centers must be able to create their own television programs, while 70 cities in the Soviet Union are to receive rebroadcasting stations which will transmit television programs originating from the television centers. For this purpose, they must be united with the latter by means of relay or cable lines.

At the present time, there are already 106 television stations operating in the country, of which 87 produce their own programs and 19 merely rebroadcast programs emanating from various points of origination.

Television centers which broadcast their own local programs over the local national language have been built in all the capitals of the Soviet republics and autonomous republics, with the exception of the capitals of the Komi Autonomous SSR, the Yakutian Autonomous SSR, and the Chuvash Autonomous SSR, where the television centers are still under construction.

Television centers have likewise been built in the kray centers, the major oblast cities, and in the industrial districts.

Television programs may be viewed in the polar cities of Vorkuta, Noril'sk, and Murmansk, as well as in the Far East in the towns of Magadan, Petropavlovsk-na-Kamchatke, Yuzhno-Sakhalinsk, Komsomol'sk-na-Amure, and other cities of Siberia, Central Asia, and the European part of the Soviet Union.

Television programs from Moscow are received in 23 oblasts in the country.

There is a regular exchange of television programs between Moscow and Kiev with the aid of relay lines and cable trunk lines; Leningrad exchanges programs with Tallin and Riga.

As a rule, most of our television centers operate six days a week, for an average of 2.5-3 hours/day. The newly built television centers during their first year of operation, function for 2-3 hours/week (for 2-2.5 hours/day). Only a small number of television centers in the capitals of the Soviet republics and major oblast centers functions on a daily basis, but even these stations operate not more than 4 hours a day. In Moscow, two television broadcasts are sent out for 11 hours each day; in addition, there are

experimental color television broadcasts. The latter are transmitted for two hours each week. The color television programs are sent out simultaneously on the second television program channel and the eighth channel. This allows viewers to see color television broadcasts in black-and-white over their 3- and 5- channel television receivers; a color television set will receive these broadcasts on either of the two channels.

The brief survey of television development in the Soviet Union over the last few years presented above shows that in the past, emphasis has been placed on the construction of production centers rather than the building of rebroadcast television stations and relay lines.

The Central Committee of the CPSU (Communist Party of the Soviet Union), in passing its resolution on the further development of Soviet television, has posed great problems before the television workers. This resolution calls for a significant improvement of the quality of television program content, as well as for an increase in the volume of television broadcasting and the number of television programs.

In the light of this resolution, plans for 1961 and the succeeding years of the Seven-Year Plan are designed to ensure the further improvement of technical television broadcasting resources and a fundamental reconstruction of television program production facilities, as well as an improvement in the quality of the program matter itself.

Further developments in television in the Soviet Union must proceed along the path of a significant curtailment in the construction of program production centers and the maximum development of the television rebroadcasting station network, as well as relay and cable lines.

Television program production centers must be built only in those cities and populated areas where plans for the near future do not include the laying of relay lines.

The great successes in the development of television achieved at the present time permit one to hope that the planned program of television station construction for the Seven-Year Plan will be quantitatively completed as early as the current year of 1961. The number of new television stations will, by the end of 1965, increase to 304 stations instead of the 160 provided for in the Plan. This measure will afford a considerable expansion of the television reception zone, and will go far to satisfy the demands of the people.

Present plans include the reconstruction of all functioning television centers in the capitals of the Soviet and autonomous republics for the purpose of converting them

to a two-program system of television broadcasting which will allow a simultaneous transmission of these programs in the national language of the area and in Russian.

In order to achieve these goals, plans will be completed in 1961 on the reconstruction of the television centers in question; present plans also include the designing of a new standard television center to transmit two programs which would serve as a model for the construction of new centers.

The reconstruction and building of new two-program television centers is to take place gradually, starting in 1962.

Along with all this, plans for the current Seven-Year Plan include the initiation of color broadcasts in Leningrad and a number of capitals of the Soviet republics. This year will mark the start of operations at one of the major television centers in the Soviet Union--the Leningrad Television Center. This station will transmit three television programs, one of which will be in color. A 300-meter tower will be constructed as a part of this center. High-power television transmitters will be placed at the bottom of this tower.

In 1962, a 550-meter television tower equipped with powerful transmitters is to be completed in Moscow. This will assure the reliable reception of television programs from Moscow over a 150-kilometer radius with the aid of antennas built into the television receiver, and over even greater areas by means of room antennas.

The construction work on the Great Television Center in Moscow is scheduled to begin in 1962. In addition to facilities for the production of five daily television programs, the Moscow Center will produce up to 1000 hours of television film per year, with a distribution of up to 100 prints per film.

There will also be further developments in the construction of relay and cable lines. The laying of these lines will permit television broadcast exchanges among many television centers in the nation.

An exchange of television programs between Moscow and Leningrad is scheduled to begin early this year; Vil'nyus will be able to exchange programs with Riga, Tallin, and Leningrad.

In the Urals, the same opportunity will be enjoyed by Chelyabinsk, Sverdlovsk, and Perm'; in Central Asia, the cities of Tashkent, Alma-Ata, and Frunze will be able to exchange television programs. In the Ukraine, this opportunity will be shared by Stalino and Lugansk, as well as Kiev and L'vov.

In 1962, Baku, Tblisi, and Yerevan will begin to exchange television programs.

The Moscow-Kiev cable trunk line will be extended westward. Within the next few years, this will permit an exchange of television programs between Prague, Bucharest, Warsaw, Sofia, Budapest, Berlin, and the major television centers of the USSR; in addition to this, there will be the possibility of connecting the television network of the Soviet Union to the European television system.

Television viewers in the Soviet Union will have an opportunity to see broadcasts from England, France, Italy, and other European nations, while the television viewers in the above-mentioned countries will be able to see programs from the Soviet Union. Transmissions along relay lines will flow simultaneously in both directions.

The overall volume of television broadcasting will be considerably expanded during the succeeding years of the Seven-Year Plan.

In 1961, all of the basic television centers built according to the standard designs, as well as the rebroadcasting stations which carry the programs originating from the centers, will function on a daily basis without holidays.

The volume of television programming emanating from each of the television centers will gradually increase.

Thus, for example, the 1961 television broadcast schedule in Moscow will consist of 11 hours on three programs, while in the past year it amounted to just 9.4 hours per day. By 1965, Moscow is to have a daily broadcast schedule of 25 hours per day on three programs.

In the capitals of the Soviet and autonomous republics, the average daily volume of television programs will increase from 4 hours per day in 1960 to 8 hours per day in 1965.

In the other television centers the mean daily volume of television broadcasting will likewise increase from 2.5 hours in 1960 to 6 hours per day in 1965. Daytime broadcasts will be initiated at most of the television centers starting in the current year. This means that in 1961, each television center in the capitals of the Soviet and autonomous republics, as well as in the major kray and oblast, will broadcast from 1500 to 1800 hours of programming per year, while the other television centers will transmit from 1000 to 1500 hours per year.

Television broadcasts must be varied and new every day. Repeated showings of individual programs is permitted in exceptional cases. This state of affairs makes the production of television programs a very difficult matter. Actual work experience at a number of television centers

in various parts of the country has shown that many cities are encountering great difficulties in the production of local television programs. This may be explained, first of all, by the lack of local creative resources, and secondly, by the exclusive availability at the rental film libraries of only a limited number of films, which are frequently worn and unsuited for showing on television. Consequently, in order that such television centers might show good and meaningful television programs, it is necessary to create a fund of television programs on film. This will afford a means of carrying on an extensive exchange of television programs among the centers, and will also result in a considerable improvement in local television programming quality.

One of the most important tasks of television is to keep a constant and efficient flow of information going out to the public over television on the most important events going on both within the country, republic, kray, and oblast, as well as abroad. This information can be obtained with the aid of the preliminary filming of events as they occur and the showing of these films on television.

Thus, television must create large backlogs of television programs consisting of films taken of actual plays, television productions, concert numbers, lectures, and other informative materials. In addition to this, television needs the large-scale filming of news events.

Thus, for example, in the past year all of the television studios in the country shot a total of 1600 hours of film, including 41 hours of backlog materials and 1190 hours of timely events. Plans for 1961 include the shooting of 2800 hours of film for television.

The rapid development of films for television and the volume of work being done in this area indicates that the total amount of 5500 hours of film to be taken in 1965 will be considerably exceeded.

It follows from the data cited above, that the total amount of film footage to be shown over television in the future will grow; it will soon exceed by several times the total film output of all of the film studios in the country.

Great problems confront the workers in science, industry, and the television industry itself.

There is a need to modernize transmitting stations and studio facilities. The various institutes and industrial enterprises must work out and expedite the mass-production of new and improved television equipment. The integrated multi-program television studio equipment designed in 1955 and intended for installation at television centers is still not being produced by industry; at the

same time, for some unknown reason, the production of the formerly produced four-channel equipment designed for this purpose was stopped in 1959.

Work has also ceased on the development of mobile and reporting units so essential to television. In addition, little has been done to improve the quality of transmitter tubes.

There is a need for a considerable improvement in the quality and quantity of television receivers presently produced. At the present time, the people of our country are registered as having about 6 million television sets; this, however, is insufficient. In a number of cities, where television centers have been operating for two years and more, the number of television receivers still does not exceed 3-4 thousand, despite the fact that the demand for sets in these cities and elsewhere is great. It is necessary to note, that the industrial enterprises have become overly enthusiastic over the production of a large number of various models of television sets, all the while devoting little attention to the provision of picture tubes and replacement parts, and failing to attend to the matter of integrating and securing the interchangeability of separate circuits. As a result of this, the television repair shops are being overloaded for extensive periods of time with a great number of television receivers requiring replacement picture or circuit tubes. Thus, for example, a single repair shop in the city of Tashkent accumulated over 900 television receivers requiring repair work in July, 1960, alone. Because of the replacement part shortage, one of the television repair shops in Kazan' is overburdened with 500 television receivers. Such a state of affairs seems to prevail in every city where there is a functioning television center. It is necessary, finally, to solve the problem of the production of inexpensive transistorized television receivers with printed circuits. There is also a need for increasing the output of television sets up to a figure of 25 million units by the end of 1965; this should be done in order to secure a ratio of 1 television station to 30-40 thousand receivers.

Present plans include the construction in Moscow within the next few years of a television film production facility designed to produce up to 1000 hours of film per year. Similar facilities with a television program output of up to 150 useful hours per year (later to be increased to 350 hours per year) are to be built in Leningrad and Kiev. In addition to this, the capitals of the Soviet and autonomous republics, as well as the major oblast centers are also to have local television program production.

The television centers themselves are also to shoot films of their own television productions, concert numbers, special subjects, and news events. For this purpose, the centers are to be provided with television film production facilities, which are designed to contain all necessary equipment for the filming of television programs and the processing of the finished films.

At the present time, due to the lack of special apparatus and equipment, the television studios are making use of the type of equipment used in the field of cinematography, up to and including the 35-millimeter film. As has been demonstrated by experience, however, this type of procedure is unsuitable for television because of its inefficiency; the production process is both long and expensive, and the motion picture apparatus and equipment is extremely unwieldy. Television needs techniques which would expedite the rapid and voluminous production of television films inexpensively. At the present time, the major portion of the television studios have been converted over to 16-millimeter film newsreel photography.

In 1962, all of the television studios will use 16-millimeter film exclusively in making their newsreels. By 1962, the television studios are also to be furnished with equipment for filming television programs directly off the television screen on to 16-millimeter film. The introduction of this new equipment will considerably facilitate the television program production process, and will consequently raise the production output.

In the future, the television studios will also receive reporting and studio apparatus for synchronous 16-millimeter photography.

A number of designing agencies are presently engaged in working out the entire complex of apparatus for shooting and processing 16-millimeter film for the purpose of introducing this technique into television. A portion of this work has already been completed, and in the current year, the industrial enterprises will initiate the mass-production of such equipment; the rest of the apparatus will also have been designed in the current year, and its production will start in 1962.

The conversion of television film production over to the 16-millimeter film will permit a considerable increase in the production output, in addition to improving the efficiency and providing a great measure of economy in the expenditures for film production. The savings accruing as a result of 16-millimeter film photography and the utilization of apparatus designed for shooting directly off the television screen will amount to approximately 50 million

rubles in the current year.

The method of recording television programs on magnetic tape will assume a significant place in television within the next few years. The development of such domestic apparatus is now being completed, and the resulting equipment is due to be tested at the Moscow and Leningrad television centers within the current year. The mass-production of domestic videomagnetic recorders is scheduled to start in 1962. When made available to the television centers, this apparatus will permit a considerable increase in the output of television programs, accelerating the production process and allowing for even greater savings in program production expenditures.

At the present time, while the products of the cinematic industry are still being widely employed in television, and while there is a desire in the field of cinematography to make use of the means afforded by television in the creation of motion picture films, it would be wise to scrutinize the question of a more intimate co-operation between cinematic and television workers. This co-operation is necessary because of the fact that in the cinema, as in television, there is a necessity to create new and progressive technological techniques for the production of cinematic and television films.

The time has come to think of a union between the newsreel industry and television. The newsreel field is presently exhibiting a greater affinity for television than for the cinema theater. Such a union would afford a more rational solution to the problem of creating motion picture film laboratories at television centers. In this case, it would not be necessary to construct film facilities at the television centers located in cities which also have newsreel facilities, nor would there be a need for creating newsreel facilities in areas having program production television centers.

The problems involved in the development of television raised in this article (and probably others, closely allied with them) require thorough discussion. For this reason, it would be desirable if our readers were to speak out on the problems covered on the pages of our magazine.

TELEVISION PLANNING WORK IN 1960-1961--Tekhnika Kino i Televideniya, No 1, 1961, page 95.

The development of new standardized and individual plans for the construction of television centers continued in 1960.

Standardized plans have been worked out for a class IV television center with a small studio of about 50 meters squared, having a television and radio station of the "Yakor'" type for operation in the first five frequency channels, or a "Igla" type station for operation on frequency channels 6-12 and a two-program ultra-high-frequency frequency-modulation radio station. The project at hand is intended to serve as a model for the construction of television centers in cities located far from program producing television centers, radio relay lines, and interurban cable trunk lines. Such a television center will broadcast mainly various films and programs shot on film; local studio broadcasts will be simple in format and of short duration. Facilities for programs originating outside the studios are not provided.

The total broadcast time of the class IV television center is to be about 23 hours per week: seven evening broadcasts of 3 hours each and one daytime broadcast on Sundays of 2 hours' duration. Studio broadcasts are not to run for over a half hour.

The television studio equipment includes two camera channels with a KT-6 camera in the studio and a KT-30 camera in the film projection room. The equipment in the projection room permits the showing of both 16- and 35-millimeter films.

In connection with the fact that in a number of cases the construction of interurban communications lines designed to carry television programs to the rebroadcast stations is lagging behind the construction schedule, a standardized design for the construction of a temporary studio and equipment complex in the rebroadcast station building has been worked out. This design includes the placement in the rebroadcast station building of a small television announcer's studio approximately 25 meters squared in area, a television equipment room, a projection room, and the necessary auxiliary facilities. The television equipment consists of two camera channels, while the projection room is equipped with 16- and 35-millimeter projectors.

The auxiliary portions of the production section are to be located in a small, separate or specially constructed building within the area of the rebroadcast station or a short distance away from it.

Working plans have been drawn up for the class I television centers to be constructed in Tbilisi and Yerevan, as well as unclassified television centers in Leningrad and Tallin. The first two projects include the construction of studio and equipment complexes having television studios 600 and 80 meters squared each, as well as the appropriate

equipment and auxilliary facilities. At the Leningrad two-program television center, there will be six studios with an area of from 600 to 150 meters squared; the Tallin two-program television center will have four studios of areas ranging from 600 to 80 meters squared, as well as directors' and technical rooms, in addition to projection rooms and auxilliary facilities.

All of these new facilities will employ the new unified television equipment of the "Gorod" type operating on 5-18 camera channels.

All of the newly constructed television centers are to include motion picture film production facilities for shooting television programs and the creation of program backlogs. These television centers will be among the largest in the country.

In the Ostankino district of Moscow, in accordance with the confirmed project plan assignment, construction has begun on a new, large transmitting television center, designed to broadcast five television programs (including one in color) and six radio programs on the ultra-high-frequency channels. The new structure will have the unique form of a tower made of prestressed concrete, and will be 520 meters high. Such a height was chosen out of considerations for the necessity of increasing the reliable reception zone for direct broadcasts originating from the Moscow Television Center, and the significant improvement in the quality of television reception within the city of Moscow itself.

Numerous television and radio broadcast antennas will be mounted atop the tower. Its lower portion will contain a twelve-story building to house the transmitter studios.

A project plan for the reconstruction of the Moscow Theater imeni the Mossovet, which will be turned over to television, has been worked out. This television theater, which already serves as an origination point for broadcasts of television production and concerts in the presence of a live audience, will be equipped with the appropriate complex of stationary apparatus.

In 1961, standardized and individual designs for the construction of new, and reconstruction of existing, television centers for two-program and bilingual television broadcasting in the capitals of the Soviet and autonomous republics will be worked out. Work will also be started on the development of a project plan for the construction of the second portion of the studio and technical complex of the Great Moscow Television Center, which will include a number of large production studios, various facilities, and provisions for the recording of television programs by means of film and videomagnetic recording.

As in 1960, planning will continue on the laying of interurban radio relay lines for television program exchanges between the television centers in various cities.

Several projects for the construction of large television centers in a number of foreign countries will likewise be worked out.